NRCS Natural Resources Conservation Service

Conditions and Trends of Natural Resources In Kansas

Conditions and Trends of Natural Resources in Kansas

In the next few pages, you will find information on Kansas' soil, water, and other natural resources. This information represents data from the most recent study completed by the Natural Resources Conservation Service (NRCS).

At five-year intervals, the NRCS conducts a National Resources Inventory (NRI), a national comprehensive survey which assesses the use, treatment, conditions, and trends of natural resources on nonfederal rural lands. These lands grow our crops, raise our livestock, and provide wildlife for hunting and fishing. In Kansas, they make up 94 percent of the land in the state, or 51.6 million acres.

To obtain NRI data, NRCS employees evaluated thousands of randomly selected sample land units nationwide. Detailed resource observations were made at several specific points within each 160-acre sample unit. These evaluations were made through on-site investigations and also with new remote sensing technology.

The result of each NRI is a snapshot of natural resources in Kansas. This snapshot is vital to help Kansans in the public and private sectors make sound environmental and land-use decisions. This data was collected on nearly 9,183 sites or 1.5 million acres in Kansas.

People who use this information make up a large and diverse group, including farmers and ranchers; contractors and developers; special interest group members; university, state, and federal agency professionals; legislators; and many others. NRI data helps all these natural resource stakeholders identify the resource areas that are in good condition and those that need extra attention in the future.

For additional information, a complete summary of the 1997 NRI data is available at the NRCS state office. You may write to:

USDA/NRCS
NRI
760 S. Broadway
Salina, Kansas 67401

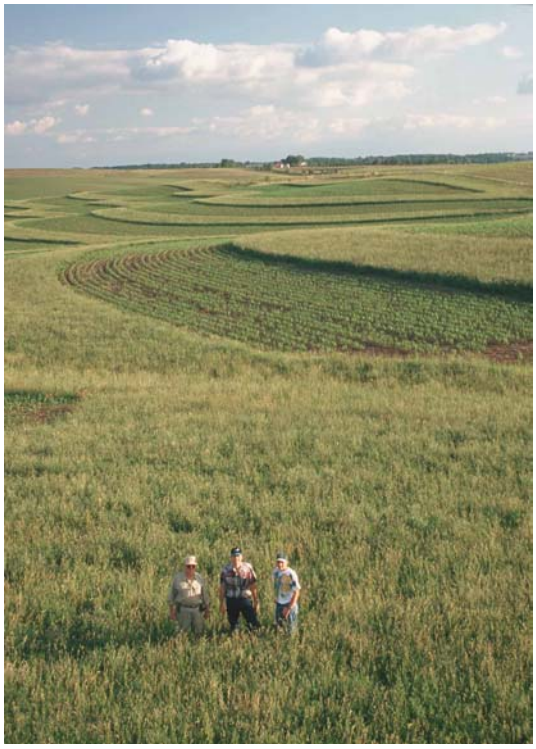
You may obtain more information on the NRI from our website: http://www.ks.nrcs.usda.gov/TechResc.html

The results presented in the next few pages are from the 1997 National Resources Inventory. These results are especially significant when compared to 1982 NRI data, as they provide stakeholders the opportunity to look at fifteen-year trends on nonfederal rural lands.

Overall, the 1997 NRI data reveals progress in the protection of the natural resources in Kansas.

“Kansas farmers and ranchers have made tremendous progress in applying conservation practices to protect our natural resources over the past fifteen years,” says Leroy Ahlers, Acting NRCS State Conservationist. Many of these practices were installed under the 1985 Farm Bill.

NRCS soil technicians will be challenged in the future to provide technical assistance to help producers in applying land treatment that addresses all resource concerns. These concerns address soil, water, air, plants, animals and human (SWAPAH) needs. Ahlers emphasizes that it is important to protect our natural resources to ensure it is sustainable for future generations.



Land Use Trends in Kansas

Nearly all (51.6 million acres) of Kansas' 52.6 million acres are nonfederal lands. Nonfederal lands include farms, ranches, other privately owned lands, American Indian trust lands, and lands owned and/or managed by state and local governments.

Overall, the use of nonfederal lands in Kansas has remained relatively stable over the last 10 years. The most significant change was a decrease in cropland acres, which dropped from 29.1 million acres to 26.4 million acres, or about 10 percent. This decrease in total number of acres in crop production is due in part to the effects of the Conservation Reserve Program and urban development.

Significance of Agriculture in Kansas

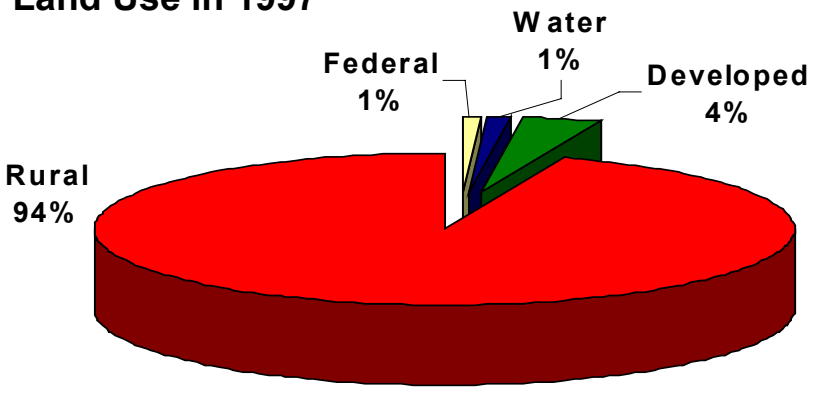
Only 4 percent of the total surface area in Kansas is developed. The rest of Kansas is 94 percent rural, 1 percent Federal land, and 1 percent water.

Kansas is one of the few states that uses 90 percent of its land for agricultural purposes. Total cash receipts from agriculture in 2001 were $7.9 billion. The gross farm income for the 64,000 farms and ranches in Kansas totaled $2.9 billion in 2001. *Source: Kansas Agricultural Statistics Service*

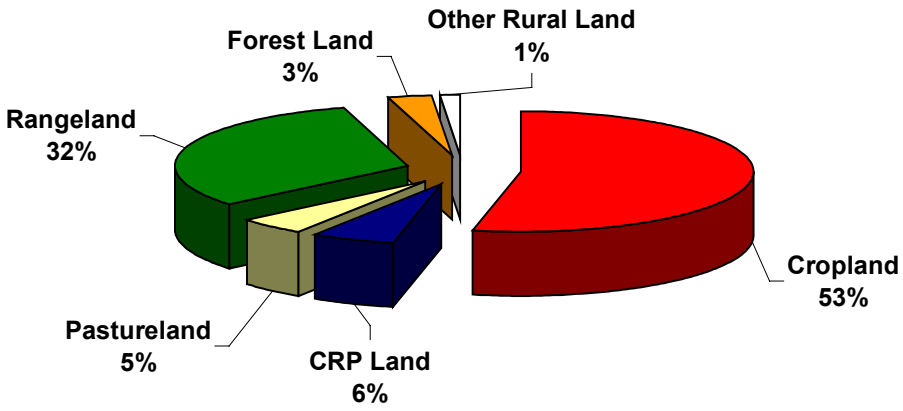
Kansas ranked fifth among the 50 states as an exporter of agricultural products during fiscal year 2000, according to data released by the Economics Research Service, USDA, and the Kansas Agricultural Statistics Service. The total value of Kansas exports is approximately $3.1 billion. This is up 8 percent from the previous fiscal year. Most of the increase came from live animals and meats, along with increases in feed grains and products.

Kansas managed to retain the rank of first place in the export sales of wheat and wheat products with approximately $721.5 million.

Overall Land Use in 1997



Nonfederal Land Use in 1997



How Nonfederal Land is Used (acres) - *15-year trend*

	1982	1997
Rangeland	16.5 million	15.7 million
Cropland	29.1 million	26.5 million
Forest Land	1.4 million	1.5 million
Conservation Reserve Program (CRP) Land	0	2.8 million
Pastureland	2.2 million	2.3 million
Other Rural Land	700,000	716,000

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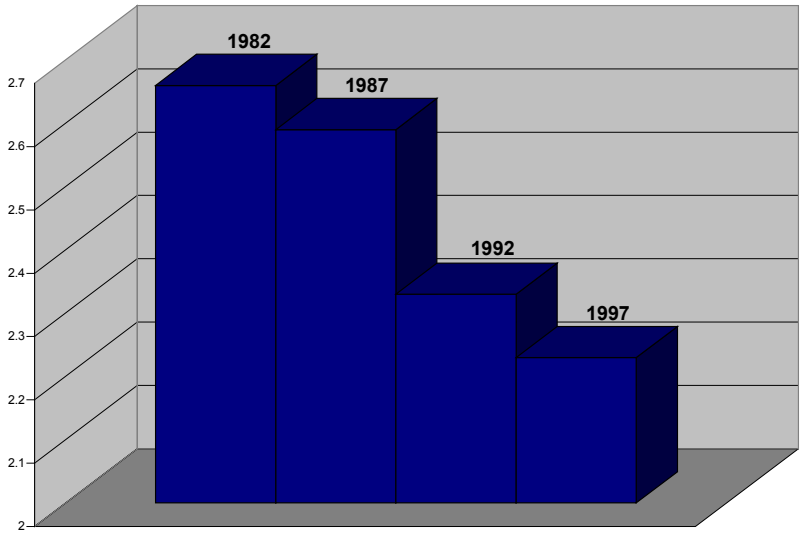
Wind and Water Erosion

Since 1982, water erosion on cropland has been reduced by 16 percent. Wind erosion has been reduced by 45 percent. Stewardship by agricultural producers and private landowners on the Nation's working lands hit an all-time high with successful implementation of the 1985 and 1990 Farm Bills.

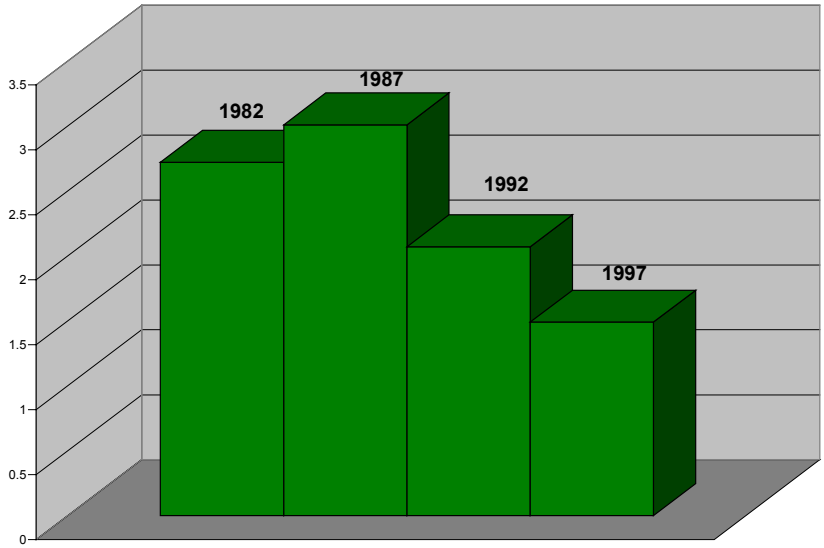
In 1997, Kansas had 2 million acres of cropland that were being eroded by water at rates exceeding the tolerable limit. Another 1.8 million acres of cropland were eroding at rates that exceed tolerable limits from wind erosion.

In comparison, in 1982 Kansas had 3.2 million acres of land that exceeded tolerable limits from wind erosion and 4.2 million acres that exceeded the tolerable limits from water erosion.

Water Erosion Trends on Cultivated Cropland in Kansas
tons/acre/year



Wind Erosion Trends on Cultivated Cropland in Kansas
tons/acre/year



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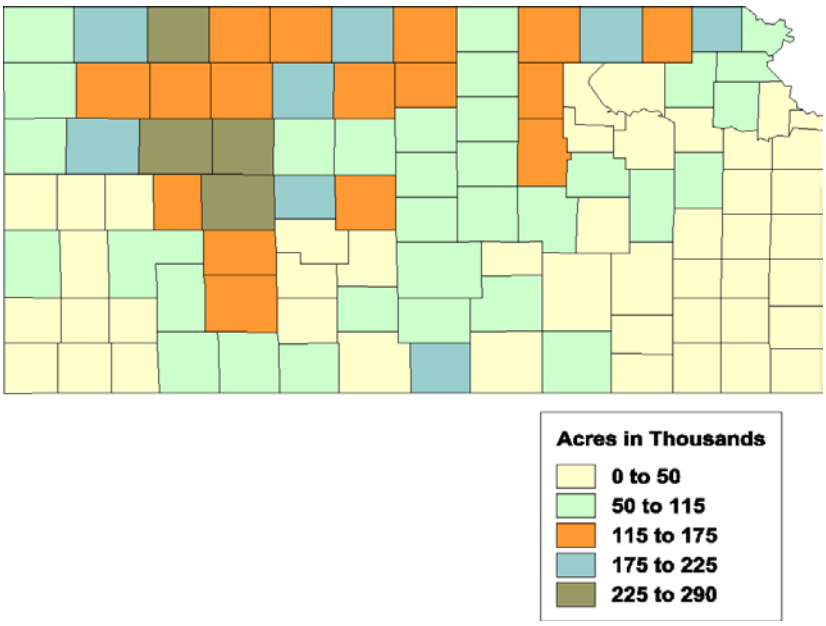
Conservation Practices

Over the years, Kansas land users have applied many different types of conservation practices to protect and sustain the natural resources.

Conservation practices consist of either structural practices or management practices. Structural practices are permanent practices such as ponds and terraces. Management practices are those practices that are annually applied to the land by the land user, such as contour farming and crop residue management.

The National Resources Inventory tracks a small number of these practices. The following graphics show acres of land that are served by practices frequently used by Kansas land users.

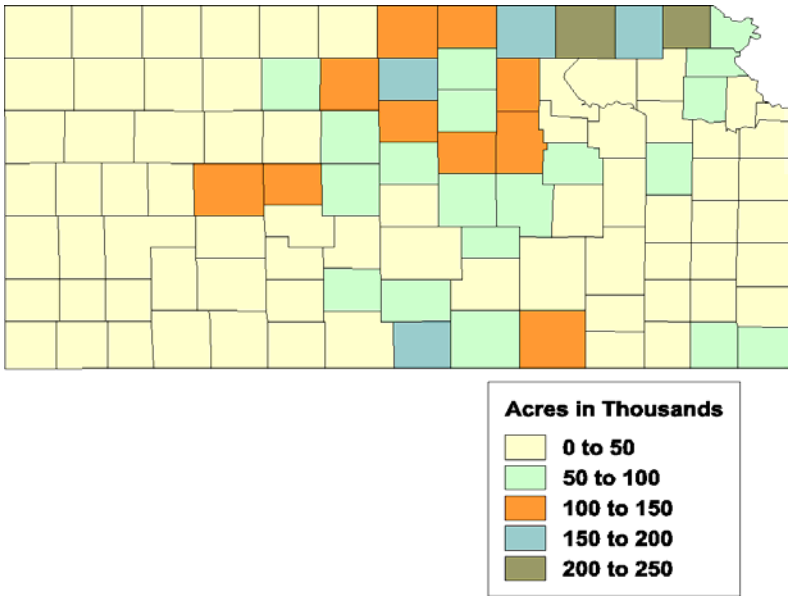
Contour Farming Distribution



Contour farming is the practice of tilling and planting around the hill with nearly level rows - creating hundreds of small ridges on a hillside. These ridges slow water flow and increase infiltration to reduce erosion.

A **grassed waterway** is a natural or shaped channel, usually seeded to perennial grass. The waterway is designed to be wide and deep enough to safely carry storm runoff water down the channel on the grass rather than across bare soil. Grassed waterways are used where water concentrates and gully erosion is a problem.

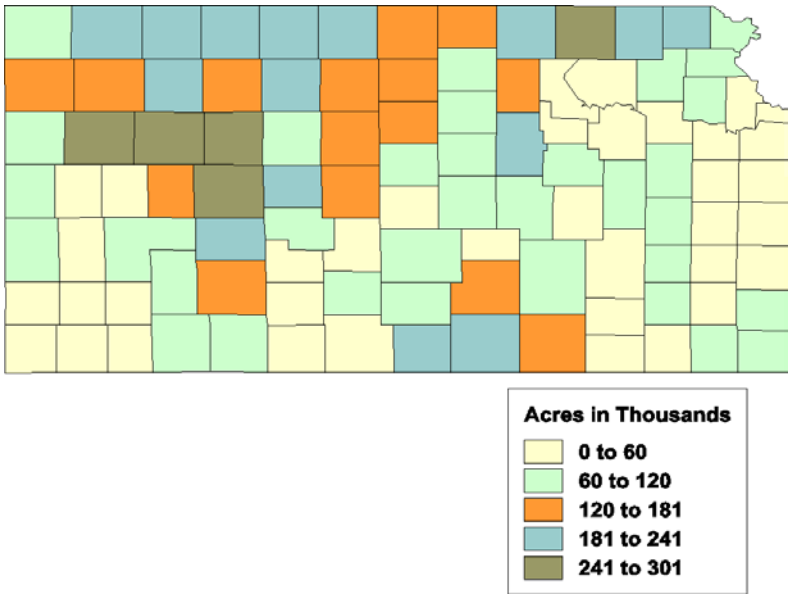
Acres served by Grassed Waterway



Terrace systems, in combination with other conservation practices, are used to help solve erosion and other resource problems. The main function of terraces is to control and manage runoff, especially in the concentrated flow areas. This helps reduce gully erosion.

National Resources Inventory data indicates that throughout the years, Kansas land users have installed enough terraces to reach the moon and back, roughly 450,000 miles!

Terraced Land Distribution



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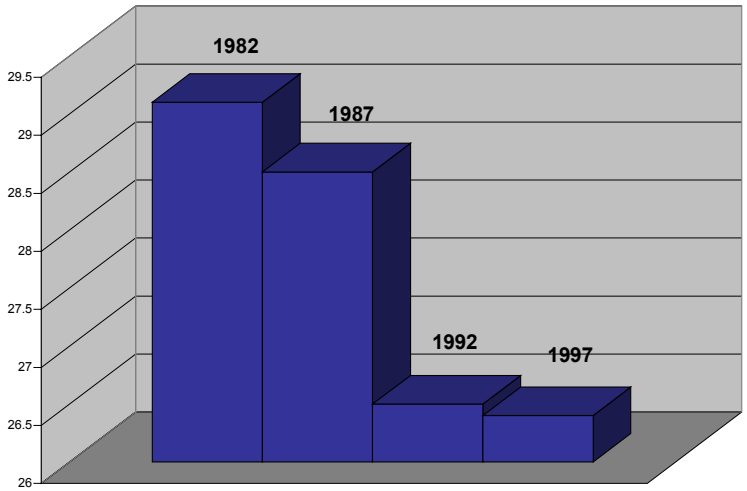
Cropland

In 1982, Kansas had 29.1 million acres of cropland. In 1987, it decreased to 28.5 million acres. By 1992, cropland was down by 2 million acres, totaling 26.5 million acres.

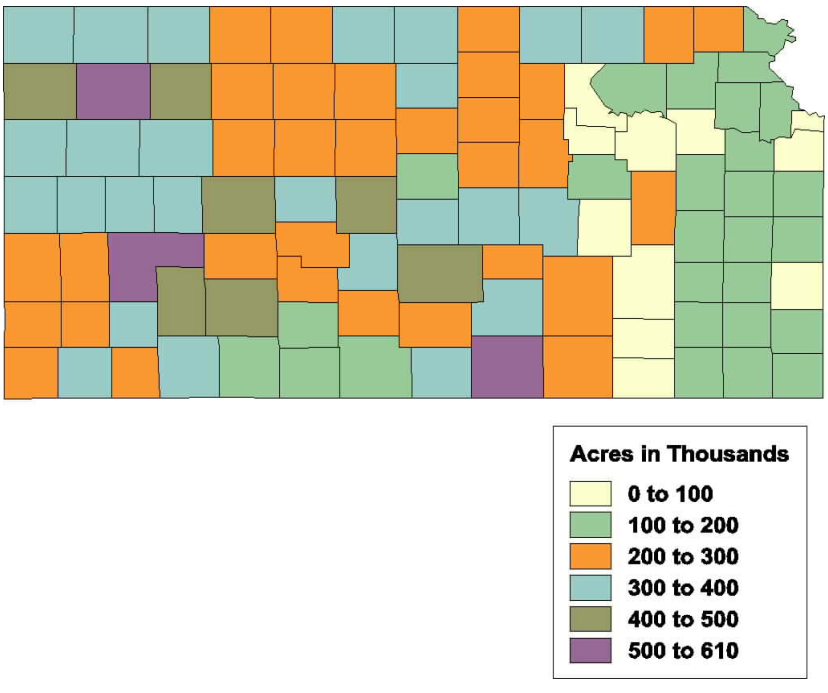
Today, there are 26.5 million acres. It has declined by more than 2.6 million acres from 1982.

With the decrease in total cropland, adequate protection of this resource becomes vital in maintaining sustainable agriculture.

Kansas Cropland Trends
in million acres



Cropland Distribution



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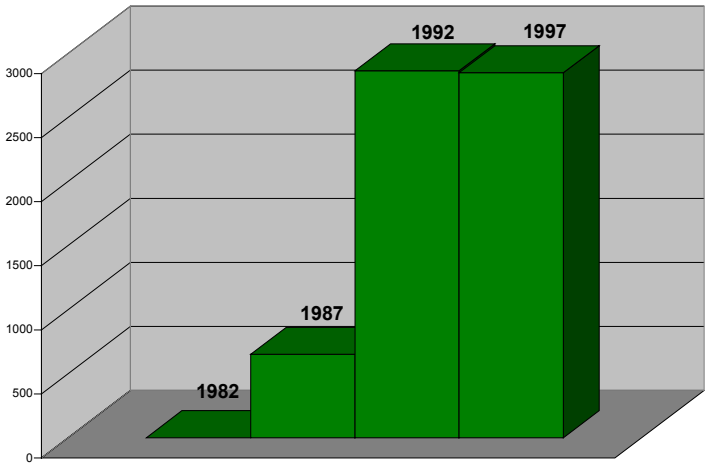
Conservation Reserve Program (CRP)

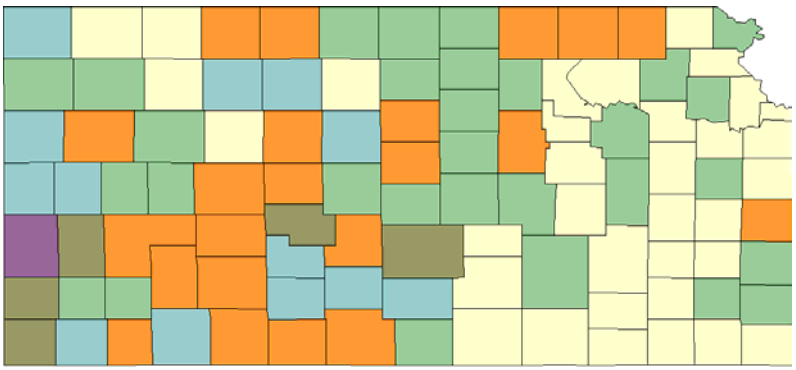
Under the Conservation Reserve Program (CRP), landowners are given the opportunity and incentive to take land out of production and plant it to permanent grass or cover. CRP land can not be grazed, hayed, or cropped in any way for a 10-year period. The purpose of the program is to preserve some of our nations most highly erodible soils and improve wildlife habitat. In Kansas, there were 2.8 million acres under CRP in 1997.

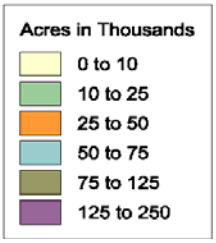
Nationally, since 1982, approximately 36 million acres of cropland have been enrolled in CRP.

Kansas CRP Trends
in thousand acres



CRP Distribution





Kansas

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1997 National Resources Inventory

Federal Land

The 1997 National Resources Inventory indicates that Kansas has 504,000 acres of Federal land, which is less than one percent of the total land in Kansas.

Nevada has more Federal land by far than any other state, with 60 million acres; that's 85 percent of the state.

Approximately 88 percent of the Federal land is located in the 11 western states.

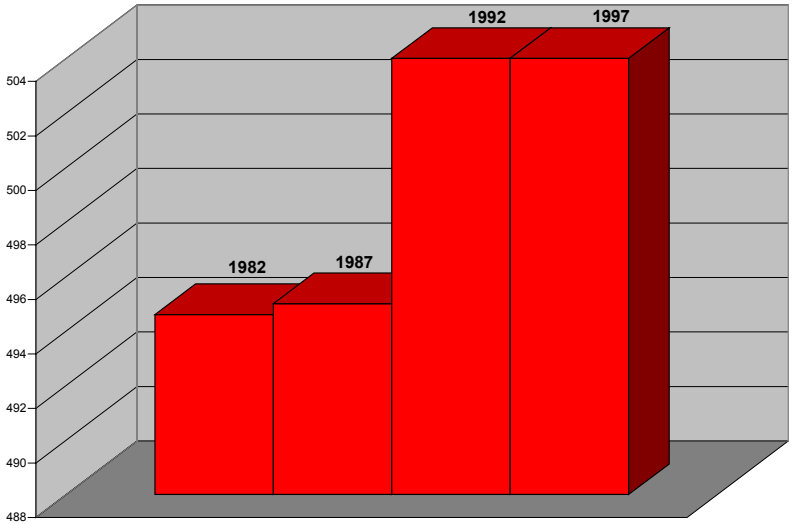
State	Million Acres	Percentage of State's Land
Nevada	60	85
California	47	46
Utah	36	65
Idaho	33	62
Oregon	32	52
Arizona	30	42
Wyoming	30	48
New Mexico	27	35
Montana	27	29
Colorado	24	36
Washington	12	29

Federal land totaled 408 million acres in 1992 – 21 percent of the Nation's total area.

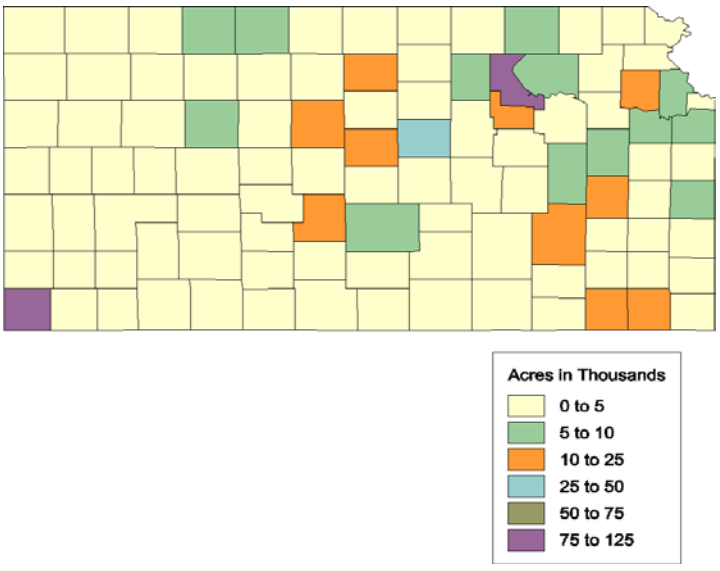
Some 108 million acres, about 6 percent of the Nation's area, is owned by states, counties, municipalities, and other nonfederal units of government.

Federal Land Trends

in thousand acres



Federal Acres Distribution



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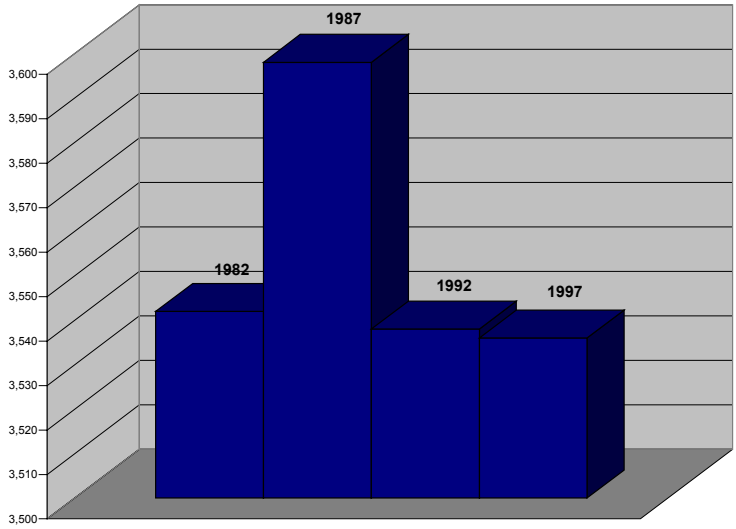
Irrigation

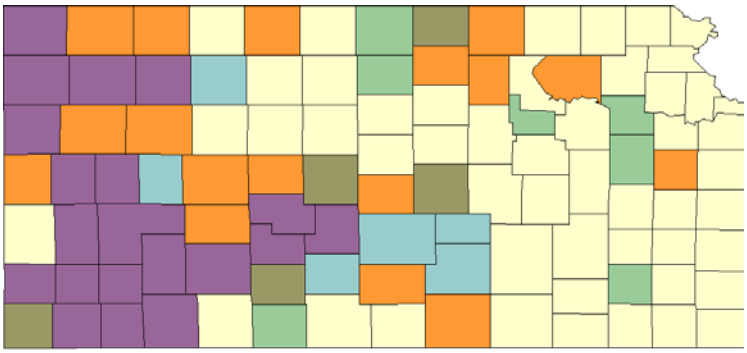
Water is the lifeblood of the agricultural economy in Kansas. Irrigation has enabled producers to grow high quality crops on a consistent basis in a semiarid climate. Crops such as corn, alfalfa, and grain sorghum have been produced in abundance under irrigation.

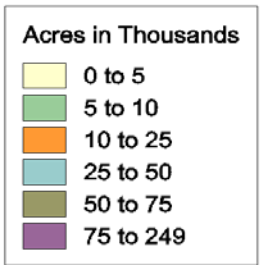
Included on this page and the next are several irrigation graphics from the 1997 National Resource Inventory.

Kansas Irrigated Land Trends
in thousand acres



Irrigated Land Distribution

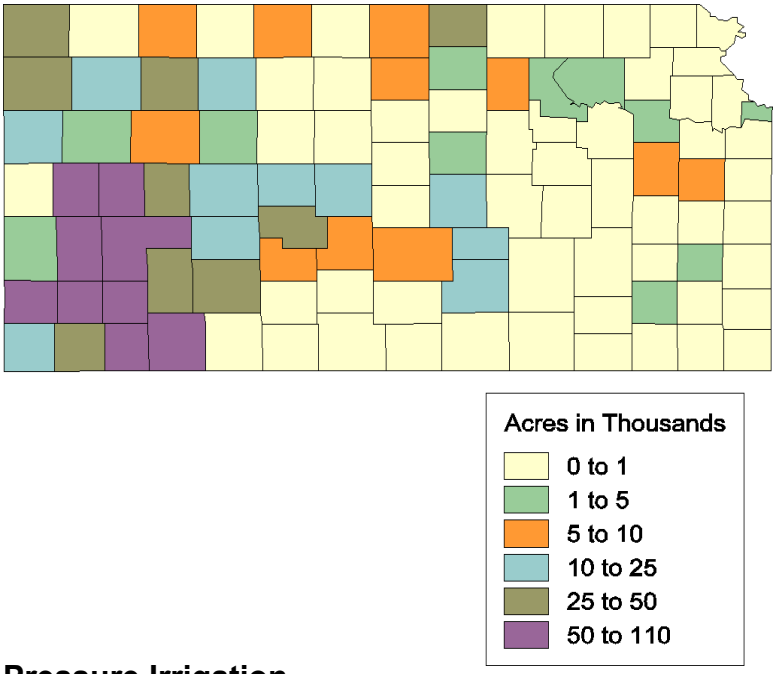




1997 Gravity Irrigation

Rank	County	Acres
1	Scott	108,900
2	Finney	108,800
3	Wichita	91,600
4	Haskell	86,000
5	Meade	81,700
6	Seward	71,700
7	Kearny	68,800
8	Stanton	66,900
9	Grant	63,000
10	Republic	48,700

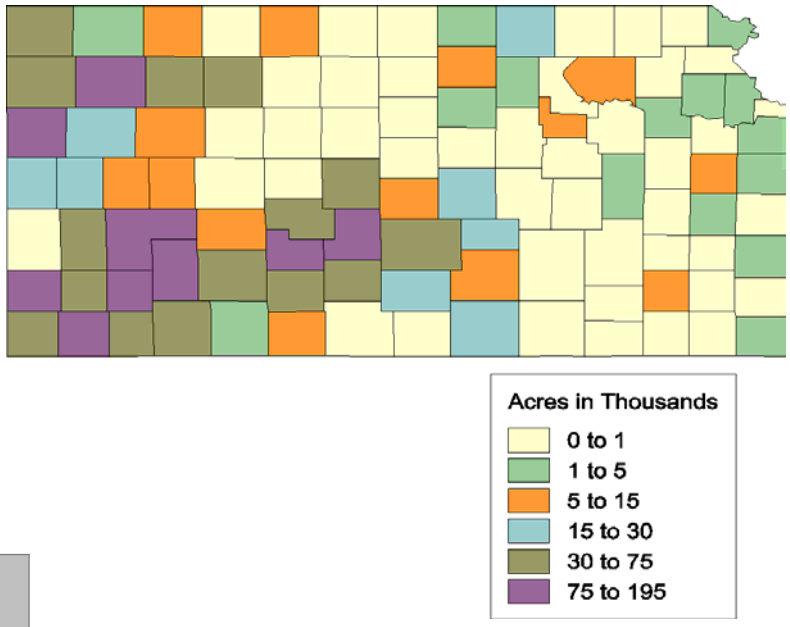
Gravity Irrigation



1997 Pressure Irrigation

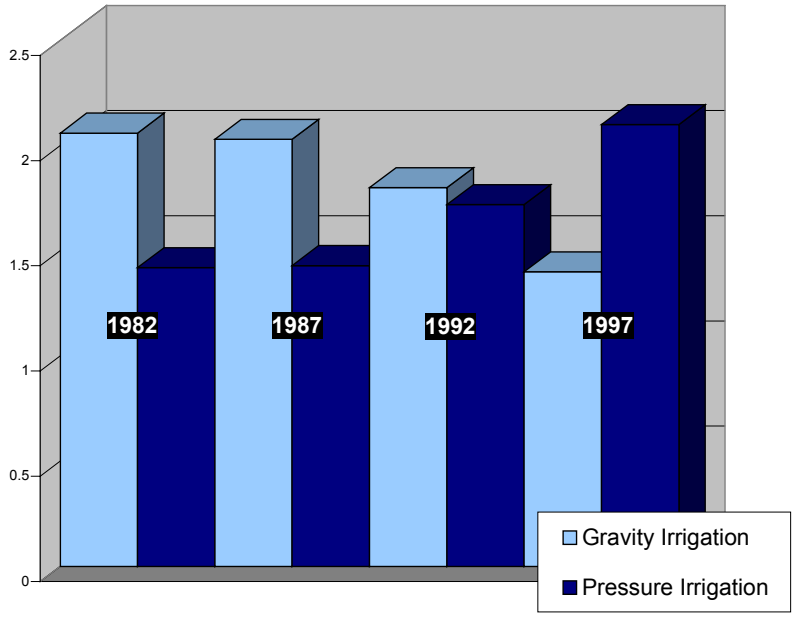
Rank	County	Acres
1	Gray	190,600
2	Stevens	142,800
3	Finney	139,800
4	Haskell	108,600
5	Edwards	92,900
6	Stanton	89,000
7	Wallace	81,200
8	Thomas	80,200
9	Stafford	79,200
10	Ford	72,900

Pressure Irrigation



Changes in Method of Irrigation

in million acres



In **pressure irrigation**, water is applied to crops through a pressurized pipe, either by sprinkler or a drip system. This type of irrigation enables the irrigator to apply the water evenly to crops.

In **gravity irrigation**, water is applied to crops by "flooding" the field using furrows.

In Kansas, pressure irrigation is steadily increasing while gravity irrigation is decreasing.

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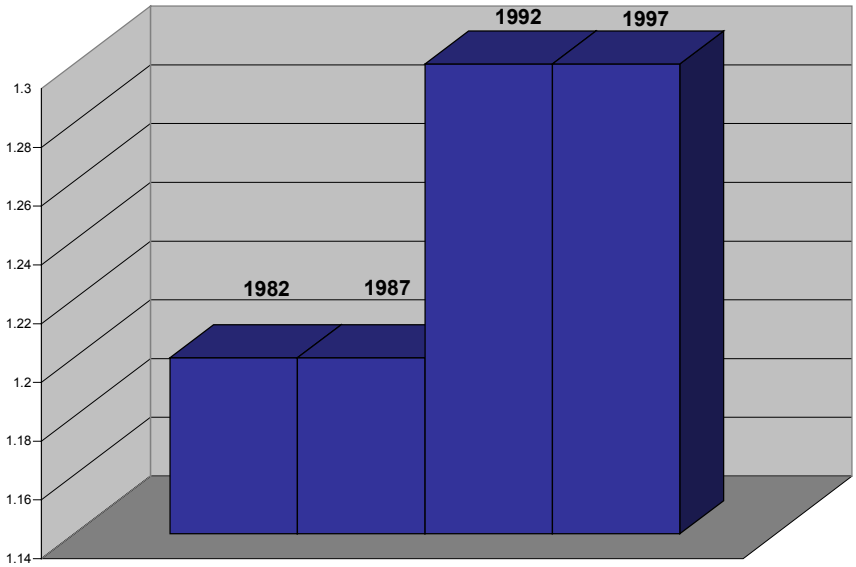
1997 National Resources Inventory

Forest Land

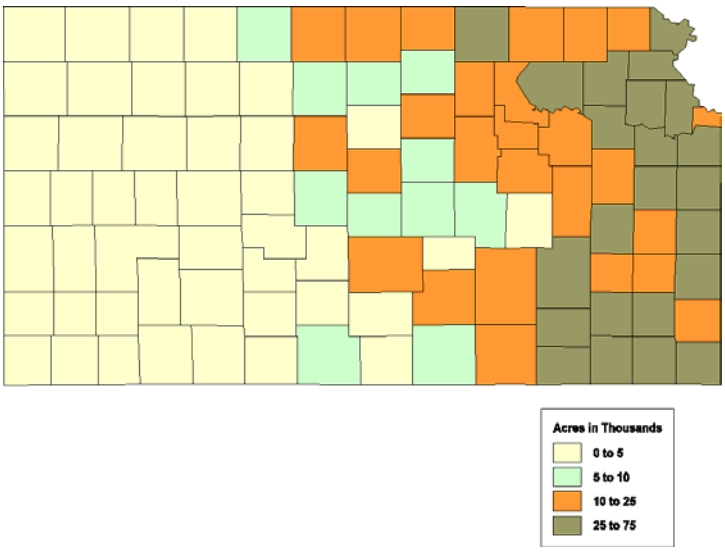
Approximately 3 percent of the total rural land in Kansas is forest land, totaling 1.5 million acres.

Kansas Forest Land Trends

in million acres



Forest Land Distribution



Kansas

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1997 National Resources Inventory

Land Capability Class

Several thousands of types of soil exist in Kansas. Detailed information on each soil type and its management are compiled by the NRCS. Much of this information is published on a county basis in the form of "soil surveys" that are available from your local NRCS office.

From these soil surveys, NRCS developed a guide that provides a uniform and useful way to quickly evaluate land potential for crop production.

The guide divides the rural landscape into eight land capability classes, ranging from Class I lands which are best suited for growing crops to Class VIII that is unsuitable for commercial crop production.

Class I soils have few limitations that restrict their use.

Soils in **Class II** have moderate limitations that reduce the choice of plants or require careful management.

Class III soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants, require very careful management, or both.

Soil in **Class V** is not likely to erode, but is limited to pasture, range, woodland, or wildlife uses due to wet soil conditions.

Class VI soils have moderate limitations that make them generally unsuitable for cultivation and that restrict their use to pasture, range, woodlands, or wildlife.

Land Use Trends By Capability Class For Cropland Acres

	1982	1997
Class I	2,997,600	2,893,100
Class II	13,544,800	12,830,900
Class III	9,142,800	8,129,100
Class IV	2,229,800	1,750,400
Class V	151,400	146,300
Class VI	981,400	729,400
Class VII	70,500	44,700
Class VIII	0	0
Total:	**29,118,300**	**26,523,900**

Class VII soils have very severe limitations that make them unsuitable for cultivation and restrict their use to pasture, range, woodlands, or wildlife.

Finally, **Class VIII** soils and land forms have limitations that preclude their use for commercial crop production and restrict their use to recreation, wildlife, water supply, or aesthetic purposes.

Kansas

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Pastureland

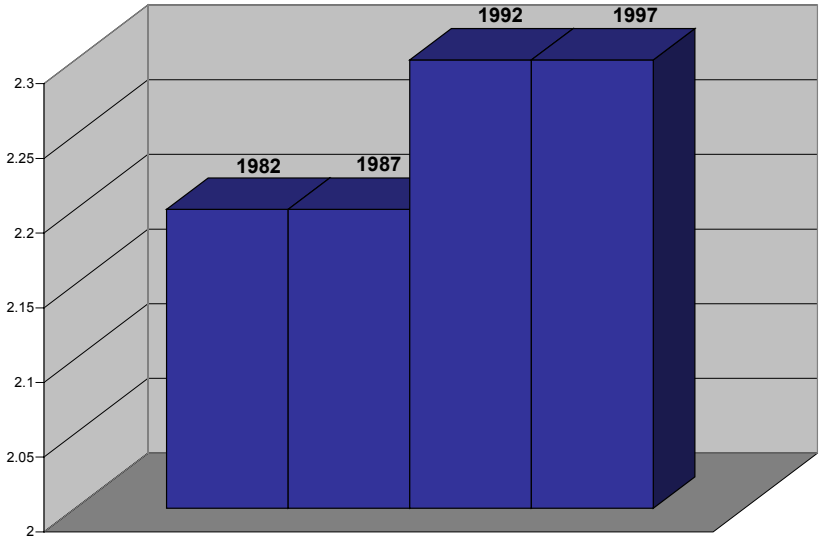
In 1982, pastureland was 2.2 million acres. Today, it has increased to 2.3 million acres, making up 5 percent of the total rural land in Kansas.

Grasses that dominate the pastureland across the state include tall fescue, smooth brome and alfalfa.

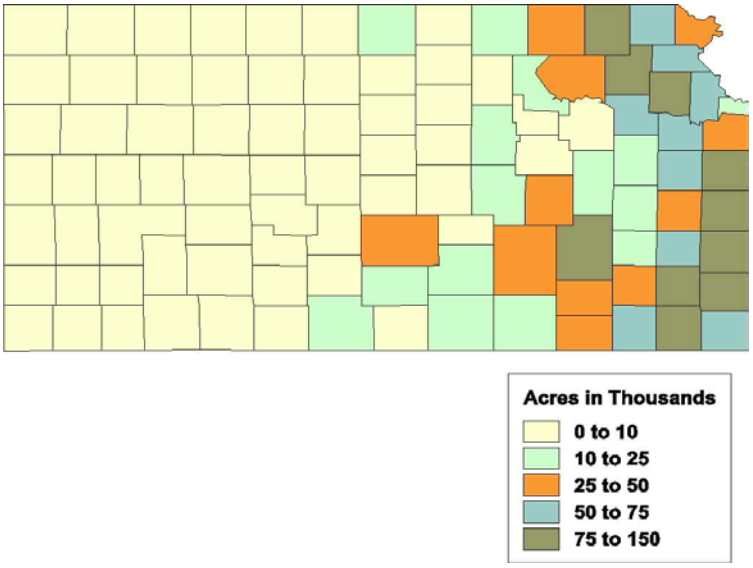
In the central part of the state, Orchard grass, Timothy, and Reed Canary grass are commonly seen. Bermuda grass, switchgrass, and eastern gamagrass make up the southern third of the state.

Kansas Pastureland Trends

in million acres



Pastureland Distribution



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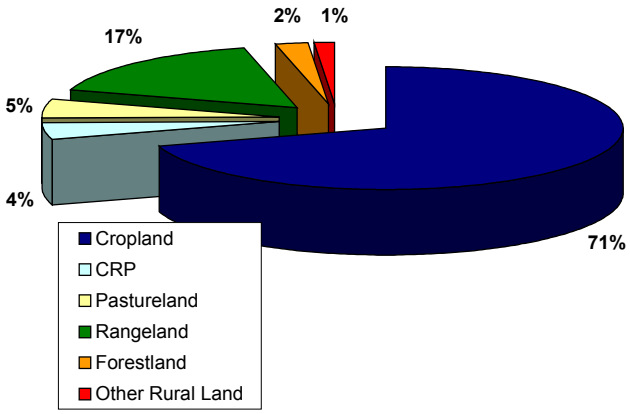
1997 National Resources Inventory

Prime Farmland

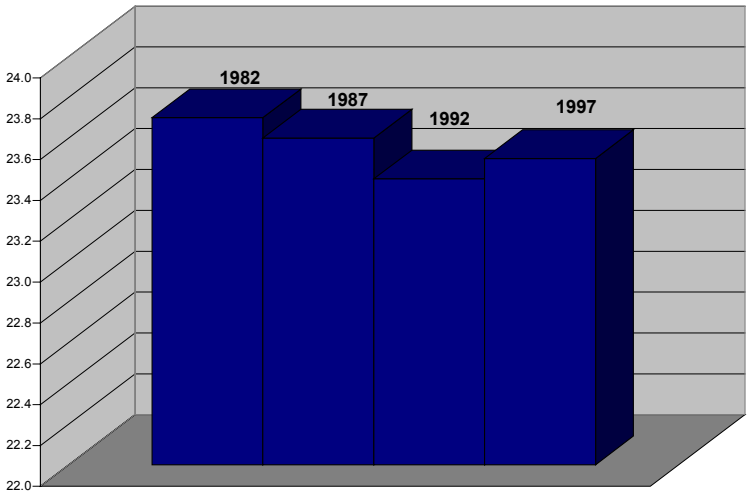
Prime farmland is rural land with the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses.

Kansas prime farmland is 71 percent cropland, 17 percent rangeland, 5 percent pastureland, 4 percent CRP, and 2 percent forest land. The rest is other rural land. See graphic below.

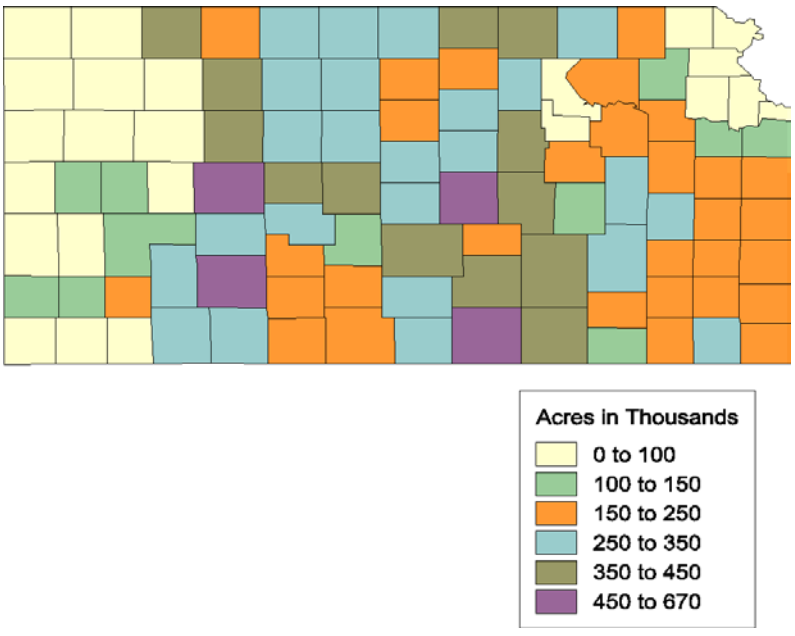


Kansas Prime Farmland Trends

in million acres



Prime Farmland Distribution



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Rangeland

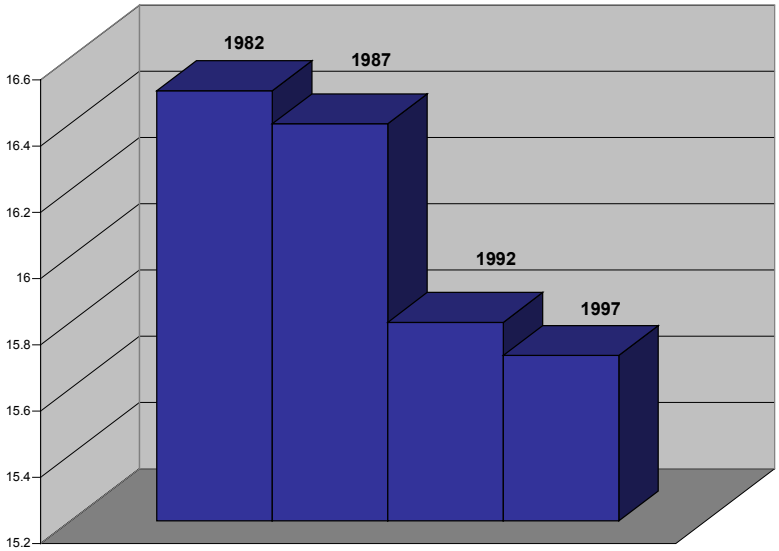
Thirty-one percent of the total rural land in Kansas is rangeland, totaling over 15.7 million acres. From 1982 to 1997, some 768,800 acres of nonfederal rangeland were converted to other uses. Of the 105 counties, 11 counties have rangeland that cover more than 50 percent of their total surface area. Approximately seven counties have between 300,000 and 530,000 acres.

Rangeland is land on which the plant cover is composed of native grasses, grass-like plants, forbs or shrubs suitable for grazing and browsing.

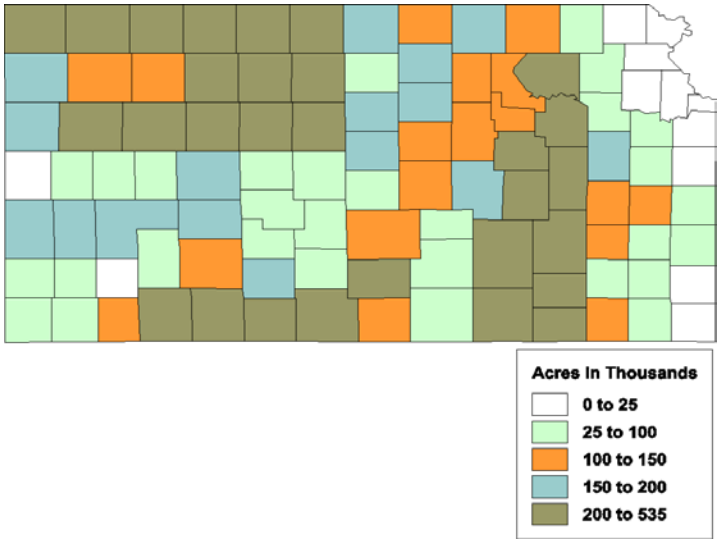
Management of rangelands in Kansas has the potential to significantly impact our water quality and quantity, wildlife populations, recreation, economic, and social needs. Proper management of rangeland is essential for the sustainable production of food and fiber, as well as supporting a wide diversity of other uses. Healthy rangelands provide an economic base and contribute to quality water and sustained stream flows.

Kansas Rangeland Trends

in million acres



Rangeland Distribution



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Urban Land Use

In 1982, 1.72 million acres or almost 3 percent of the total surface area in Kansas was urban. By 1997, 1.9 million acres was urban.

Sedgwick County is the largest urban area in Kansas. This county's urban area covers 130,900 acres. Other counties that make up large urban areas include Johnson, Shawnee, and Wyandotte counties respectively.

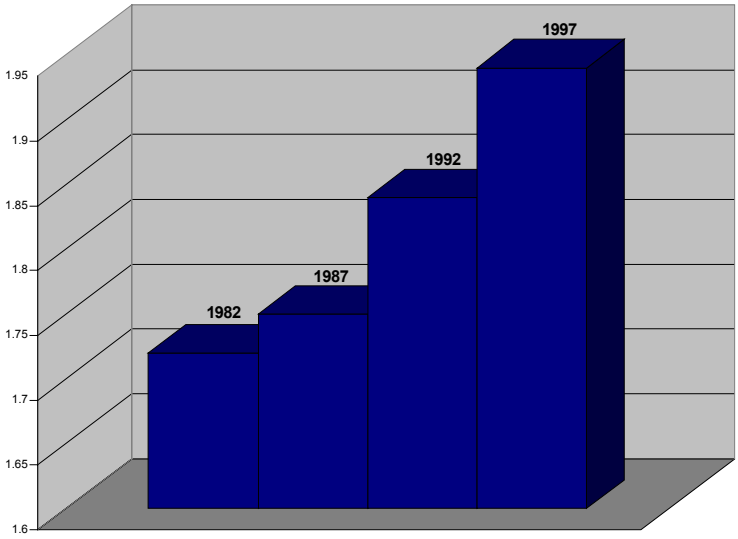
Butler County is the fastest growing urban area. The Butler County urban area covered 31,600 acres in 1997. This was an increase of 47 percent from 1982 and an increase of 23 percent from 1992.

Between 1982 and 1997, the land users of Kansas converted approximately 229,800 acres of rural land to urban development and transportation corridors.

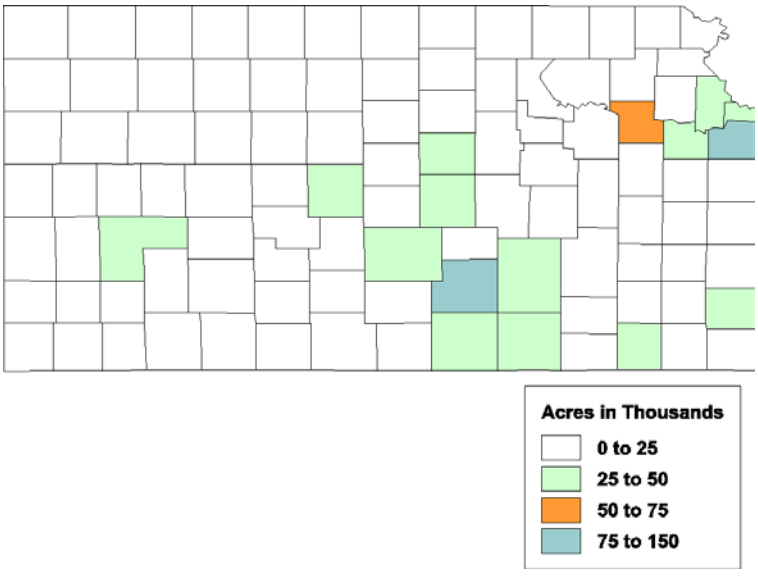
The development of urban land may not present a major problem to Kansans at this point in time but as stewards of the land, we need to be aware of the problems associated with urban development and constantly look at implementing good land use policies.

A few of the problems that are quite commonly associated with urban development include: increased flooding, increased demand for fresh water, increased demand for waste disposal, increased potential for surface and groundwater contamination, and reduction of the agricultural base.

Urban Land Trend
in million acres



Urban Land Distribution



Nationwide

The 1997 NRI shows there were 105.4 million acres of developed land in 1997, compared to 89.4 million acres in 1992 and 75.5 million acres in 1982.

In 1997, developed land totaled 92.4 million acres – nearly 5 percent of the U.S. land base. This total is some 14 million acres more than the total area of developed land in 1982.